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THE
NORTHERN
APPROACHES

By Basil Dean

A series of articles on the Arctic defences which appeared recently in The Calgary Herald, of which the author is publisher. They were prepared after a 10,000-mile tour of the Distant Early Warning Line and other defence installations.

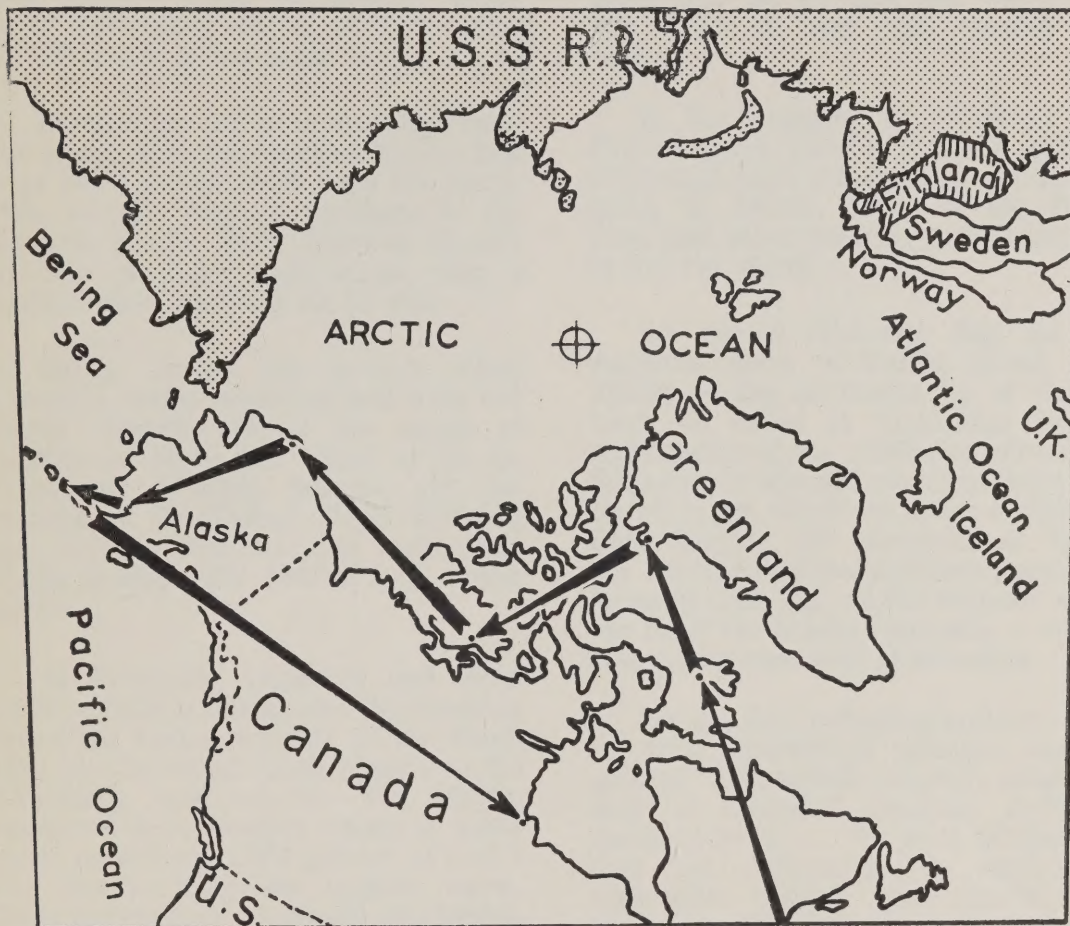
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The 10,000-mile journey began at Ottawa and the arrows on this map show its course thereafter. First stop was at Frobisher on Baffin Island, indicated by the first arrow at lower right. The next was at Thule, in Northern Greenland, after which Mr. Dean journeyed to Cambridge Bay, Point Barrow, Alaska, Cold Bay, Anchorage and Churchill, Manitoba.

The Long Night Watches

There is a radar site on the Greenland ice-cap where the mercury drops to 65 below zero and the wind can blow at 150 m.p.h. at the same time.

Perched on top of a mountain near the great American base at Thule, just over 800 nautical miles from the North Pole, are the fantastic antennae of the Ballistic Missile Early Warning System — four of them, each bigger than a football field standing on its end.

Strung across the ice-cap, along Canada's Arctic coast-line and over her Arctic Islands, around the coasts of Alaska and down the length of the inhospitable Aleutian Islands, are the stations of the Distant Early Warning line, keeping their sleepless, unblinking watch through the months-long Arctic nights.

At Frobisher, Churchill and other bases in Canada and Alaska, the immense refuelling tanker aircraft of the Strategic Air Command stand bleakly in the forbidding cold of the Far North, festooned with heaters which at some bases must burn 2,000 gallons of fuel a day just to keep the engines warm. Their instructions are simple and brutal: be ready to get off the ground within 15 minutes at any time of the day or night, seven days a week, 52 weeks a year.

These are the Northern Approaches. These are the strategic frontier which Canadians and Americans must guard with unrelenting zeal.

These are the places where the line in the old hymn, "Through the long night watches," takes on a deadly meaning. For here the sun will set at the end of October and not rise again until the end of February. And men must keep their constant vigil, perhaps in an

unimaginable storm which turns everything into an icy hell and which can kill a man 50 feet from warmth and shelter.

In the company of Canadian and United States government and military officials, I made a tour of almost 10,000 miles, in March, 1961, of the DEW Line and other military establishments in the Far North.

We visited Frobisher Bay, on the southern shore of Baffin Island, and Thule, on the northwest tip of Greenland; we called at Cambridge Bay, a main sector of the DEW line where the temperature was 47 below and there was an 11 m.p.h. wind; we spent a night at Point Barrow, the northernmost tip of the North American continent, and had lunch at Cold Bay, on the extreme western tip of the Alaska Peninsula — which is some distance west of Honolulu.

We saw SAC refuelling tankers ready for their operational missions and inspected the rocket-research establishment at Churchill (recently seriously damaged by fire). We were intercepted (but not, fortunately, in anger) by supersonic fighters over Alaska, and toured the BMEWS site in Greenland.

As a result, all of us were overwhelmed by the magnitude and complexity of the task which is being superbly performed by Canadian and American soldiers, airmen and civilians along the Northern Approaches. And we came away convinced that, as things stand, it would be impossible for Russia to launch a surprise attack on this continent.

Whatever weapons the Russians used, the SAC bomber force could be alerted before it was destroyed on the ground. To ensure this is really the sole purpose of all the Arctic defences.

The Monstrous Eye

THULE, Greenland — You approach the site of the Ballistic Missile Early Warning System along a wind-swept road which winds across the tundra below the ice-cap from the air base which nestles on the shores of Thule Bay.

It is like entering the world of science fiction.

BMEWS (they pronounce it "be-muse") is the most powerful radar station ever built. Its output is measured in multi-megawatts; a megawatt is a million watts, and the biggest CBC transmitter in Canada puts out only 50,000 watts.

It can detect and track an intercontinental ballistic missile more than 2,000 miles away; and while the missile is on its flight away from the launching pad, the computers directed by the BMEWS radar can predict its trajectory and where it will land.

A single tube in the BMEWS transmitter will put out more continuous power than Canada's biggest radio station; and in radar, power is piled up and released in millionth-second bursts of unbelievable energy. One of BMEWS' tubes can transmit pulses of over a million watts — and it has several tubes.

Close up, its high-frequency radio waves are deadly. "If you stood between the projector and the reflector," one officer said succinctly, "you would fry."

The reflectors themselves (there are four of them) project the radar pulses into the upper atmosphere over Russia, and detect any echoes — from rockets, from meteors, from satellites in orbit, even from the moon.

It cost \$500,000,000 to build, and will shortly be supported by two other BMEWS installations in Alaska and in the north of England — at \$250,000,000 apiece.

It has only one function — to give 15 minutes' warning to Canada and the

United States that a Russian missile onslaught is on the way. This will not permit New York or Toronto or even Calgary to be evacuated; but it will give the Strategic Air Command, the "Sunday-punch" deterrent, and later on the U.S.-based ICBMs, time enough to get clear before they are destroyed on the ground.

Nobody doubts that a few rockets would be aimed directly at BMEWS and that it might well be destroyed in the first wave; so it might have a useful life of only 15 minutes, which works out to \$66,000,000 a minute. But it is an essential part of the deterrent: to let Russia know that she cannot take North America by surprise. The real success of BMEWS would be measured in the fact that it was never needed at all.

It is impossible to convey any real idea of the massive size of this installation; but perhaps this fact will come closest:

The BMEWS tubes are water-cooled. The water is passed through heat-exchangers which in turn are connected to the heating system of the large building in which the transmitters, computers and associated equipment are housed. The cooling of the tubes produces enough heat to maintain the building at 65 degrees on the coldest Greenland day, and only a small amount of extra heat is needed to maintain normal room temperature.

The station is maintained through the great Thule air base, where 5,500 American soldiers, airmen and civilians battle the Greenland climate.

The temperature never gets exceptionally low — 43 below is the coldest on record. But before you decide that isn't too bad, you must remember that this is sometimes accompanied by 50 m.p.h. winds and "white-outs."

A white-out consists of blowing snow so thick that you cannot see your hand in front of your face; and whenever zero weather and high winds are combined,

Thule's people are forbidden to leave whatever building they are in; every building has its own emergency ration supply.

To heat the base and supply its power, a 7,000-ton U.S. Navy power-ship is moored in the bay. It produces 29,000 kilowatts of power and 115,000 pounds of heating steam an hour at the same time. It burns 2,000,000 gallons of fuel oil a month.

Many other activities besides BMEWS are based on Thule. Out on the bay at the time of our visit, engineers were busy building a 12,000-foot runway on sea ice three feet thick, on which they expected to land a 200-ton B-52 jet

bomber. They seemed confident it would work.

One hundred and thirty-eight miles inland, the U.S. Army has built Camp Century, the city under the ice. Here, on the ice-cap, in temperatures which may reach 65 below and winds which may reach 150 m.p.h., men were spending the winter in ice-tunnels heated by a portable nuclear-reactor so compact it can be moved in a single aeroplane.

But everywhere eyes and thoughts and radar antennae are constantly turned to the northern horizon, beyond which lies Russia. For Thule is the farthest great outpost of the Northern Approaches.

Four Hours To Zero

Along the Arctic coastline of Canada and Alaska, the stations of the Distant Early Warning line keep their silent, lonely vigil.

They are peaceful places, standing in the main alone along the forbidding shore, manned by cheerful men (mostly civilians) with the professional assurance of the latter-day electronic technician.

But so long as there is any possibility that Russia may attack this continent with traditional bomber forces, the men who run the radars of the DEW line cannot relax their vigilance for an instant. If the Russian bombers ever come to strike the cities of Canada and the United States, we shall be warned by the DEW line radars. We shall be warned about four hours ahead of the first bomb.

One day in March, 1961, the aircraft in which I was travelling flew along the whole length of the Canadian and Alaska sections of the DEW line. Now and again, we dropped down to look closely at one of the lonely stations, sitting in purposeful silence amid the icy wastes.

I wondered what sort of men would come to man these uninviting outposts;

for these are civilians, not soldiers who must go where they are sent.

Their reasons vary. Many of them are there to earn money in a place where they can't spend it — like the ex-Montreal taxi-driver who was driving a snowmobile at Point Barrow, Alaska (and who left you in no doubt about where he learnt to drive). He was there to earn enough money to buy a quick car-wash back home.

Some are there to escape the pressures of city living; but these are looked over carefully by psychiatrists beforehand, because living on a DEW station is like going to sea for 12 months in a corvette and never touching shore, and a badly neurotic member of the crew could play havoc with morale.

Some are there to taste the romance of the Far North: To rub elbows with Eskimos, and polar bears, and nights which last three months, and 60-below temperatures. But all, once they get there, become fully absorbed in the professional demands of their job.

These demands are exacting. A DEW station is useless unless its radars are working and the fantastically complex system of communications between station and station, and between the line

and the headquarters of the North American Air Defence Command, and the Strategic Air Command, is 100 per cent reliable.

There is nobody on the DEW line waiting to push the button. Its sole function is to inform NORAD and SAC of every airborne object moving within its range which it cannot identify. Once it has done this, that part of its job is finished. But its vigilance can never be relaxed. And incidentally, it has never picked up a track which has not ultimately been accounted for.

Life on a DEW station is not without its lighter moments. Professional polar

bear hunters along the Bering Sea use aeroplanes for scouting nowadays. When they spot a bear, they climb high enough to be tracked by the nearest DEW station, and they get the duty operator to "fix" their position. Then later, when they take their client out to shoot the bear, the DEW line radars can guide them to precisely the same spot on the ice.

The DEW line cost \$500,000,000 to build and costs \$56,000,000 a year to run. It is unquestionably the most expensive piece of big-game hunting equipment ever devised.

The Communications Miracle

At Cambridge Bay, on the southern shores of Victoria Island in the Canadian Arctic, we asked the meteorological officer if he could check the weather at Point Barrow, Alaska, our next port of call.

Point Barrow, the most northerly point on the North American continent, is 1,300 miles from Cambridge along the Arctic coast; and the coast is for all practical purposes uninhabited. But the weatherman picked up his phone and not only dialled Point Barrow but also dialled the extension of the weather office there. In 20 seconds we had our weather check.

In the Strategic Air Command operations room at Frobisher Bay, I overheard a senior American officer phoning the Pentagon for some urgent information.

He picked up a phone which connected him directly with SAC headquarters at Omaha, Nebraska. SAC answered more quickly than the average office switchboard would answer someone inside the building.

He asked for a line to the Pentagon. After a couple of seconds' pause, he was connected and began talking. But before he had finished what he had to say, he broke off and said, "Who are you?"

There was another pause. Then he

banged down the receiver and said "Dammit, they gave me England." He had been connected, in error, to a U.S. Air Force command post near London.

These two incidents illustrate the extraordinary complexity of the communications system which links the Northern Approaches with the U.S.-Canadian defence machine. An unknown track on a DEW line radar on the Arctic shore is communicated instantaneously to NORAD headquarters at Colorado Springs, to SAC in Omaha and to Ottawa and Washington.

The great computers at the Ballistic Missile Early Warning System site at Thule in Greenland communicate their information directly to other computers in the U.S. Ordinary telephoning across the frozen wastes is quicker and easier than most telephoning between Canadian or American cities. And the cost of providing the Northern Approaches with a communication system that is reliable under all circumstances has been astronomical.

But it has to be. The DEW line radars, which cost \$500,000,000 to build, would be valueless if their information could not be moved south quickly enough to get the great bombers of SAC in the air before they were destroyed on the

ground. If BMEWS ever detects a massive flight of Russian missiles headed this way, SAC will have 15 minutes to get its B-52s into the air before their bases are destroyed by rockets.

The DEW line, the BMEWS, NORAD and SAC all put together will not prevent nuclear projectiles falling on our cities — if the Russians ever decide to send them. Nobody pretends that there is any means of defence which will destroy the attackers before they reach southern Canada and the U.S.

What these vast organizations are designed to do is to protect the deterrent: The SAC bombers which carry nuclear bombs and the missile bases now being installed.

The underlying philosophy is simple enough: if the Russians know they cannot knock out, by surprise attack, the United States' capacity to retaliate, then they probably will never start a nuclear

war. The whole strategic pattern of the Northern Approaches is designed to make such a surprise attack, and such a knock-out blow, impossible.

It is a gamble into which, over the last 10 years, the U.S. has poured hundreds of billions of dollars and to which, through NORAD and our contributions to the early warning system, Canada has added her small share.

So long as SAC can get off the ground; so long as the U.S. inter-continental ballistic missiles can be launched in time; so long as the Russians know that, whatever they do, the U.S. and its allies will still be able to hit back, there is a fair chance that the gamble will pay off.

But everything, in the last resort, depends on the Strategic Air Command; and it is time to consider this great striking force and its relationship to the Northern Approaches.

The Sleepless Alert

A Pan-American Boeing 707 jetliner landed at Frobisher Bay on a winter's day to refuel on its way from London to Los Angeles over the polar route.

The temperature was 30 below zero and there was a 20-mile wind blowing in the Arctic twilight — a normal Arctic day. As the passengers descended, they could see a line of huge aircraft standing on the ramp, unprotected from the weather, each of them connected by large flexible tubes to a battery of portable gasoline heaters.

These aircraft were refuelling tankers of the Strategic Air Command, the U.S. Air Force's long-range bomber force.

If the tourists had been permitted to enter SAC headquarters at Frobisher, they would have seen many airmen sitting in the "Alert Lounge" in their flying suits — although the building is heated to about 80 degrees. These were the crews of the flying tankers: crews who for two weeks at a stretch are kept

at immediate readiness, 24 hours a day.

At any moment, klaxons may sound all over the building. The crews will then dash to a line of station wagons, which are never used for any other purpose, and drive to the aircraft assigned to them; all other traffic on the base, without exception, will come to a dead stop.

They will climb into their aircraft, start the engines and take off. They already know their mission — they have learnt it by heart. They do not know whether the klaxon's blast means just another practice, or whether this is for real.

Somewhere in the skies above the Arctic they will make their rendezvous with a great B-52 jet bomber. Briefly the two aircraft will be joined by the refuelling pipes, then contact will be broken, the tanker will return to base and the bomber will continue on its way. If war had started, its destination would be a Russian city.

These are the men of the Strategic Air Command of the United States Air Force. It is unquestionably the most professional military organization in the world — probably the most professional military organization in history.

Its officers and men are the most single-minded, the most dedicated, I have ever met. And, furthermore, it is the shield and buckler of the whole free world.

If you cherish an image of a sloppy GI with his hat on the back of his head and a wad of gum stuck to his teeth, you will not find him in SAC. Its bases look like a Brigade of Guards depot on the morning of a royal inspection. Its men are in the toughest league mankind has ever seen. They know it and they are proud of it.

SAC today has a number of refuelling bases in Canada. It has bombers and tankers spread at bases clear around the world, and it has its own world-wide communications system which probably has no equal anywhere. And until the long-range missiles take over, it is the bombers of SAC which alone, can contain the Russian threat.

The Northern Approaches are designed for one purpose and one purpose only: to make sure that SAC is not destroyed on the ground. This is what the DEW line and the Mid-Canada line and the BMEWS are for. They are to make certain that the weapons of massive retaliation, the great deterrent, are preserved long enough to do the job which every man in SAC, along with everybody else, prays will never have to

be done.

When the klaxon sounds, the men of SAC are expected to get their aircraft in the air in 15 minutes. If this sounds easy, just remember that four or six or eight (depending on the aircraft) great engines must be started and brought to running temperature; that they must be ready to start after sitting out, perhaps for days, at 30 or 40 or 50 below; that the crew of an average airliner will normally take 15 minutes on the cockpit check alone.

And remember, too, the tensions which such an assignment must generate. When the klaxon sounds, you go, whether you are sound asleep or in the movies or in the shower or having dinner; and you never know whether it is for real or just a practice.

It is a tough league and this is a tough outfit, run by tough-minded men. If an aircraft is broken for any reason, the squadron commander reports in person to the commander-in-chief who is not, I am told, given to sentiment or softness. Nobody in SAC likes to lose an aircraft.

There are no excuses. SAC aircraft are expected to take to the air, on demand and without warming, and there is no place for explanations of failure. For failure, in this league, is simply unacceptable.

And when you watch the vapor-trails next summer while you are playing golf at Banff, reflect that because of them you can sleep soundly in your bed at night.

The Heart Of The Matter

The heart of the defence system for this continent — and for the whole free world — is the massive deterrent as represented by the Strategic Air Command and the missile installations now coming into being.

Everything else that goes on — the DEW line, the BMEWS, the Mid-Canada radar line, NORAD — is designed to

protect and strengthen the weapons of massive retaliation. It is not possible to prevent the Russians from destroying our cities with today's weapons and the horrendous power of the nuclear bomb; the only hope is to convince the Russians that they cannot destroy our capacity to hit back.

This concept is not clearly under-

stood in Canada. Much of the debate about our role in NORAD, about nuclear warheads for our fighters in Europe, nuclear warheads for our Bomarc's at home, the kind of fighters we should buy to replace the aging CF-100 — much of this debate is carried on by people who think we are talking about preventing the bombers from reaching our cities. Even a system twice as elaborate and twice as costly as the one we have now could offer no such guarantee.

The DEW line offers no defence against enemy bombers; it merely lets NORAD and SAC know they are coming, so that NORAD can deploy its fighters and guided missiles and SAC can get its bombers off the ground. The Ballistic Missile Early Warning System, likewise, can do nothing but warn.

Now supposing the Russians sent 500 bombers to attack targets in North America. Some would be aimed at New York, some at Los Angeles, some at Detroit, Pittsburgh and Chicago. But many, perhaps the majority, would be aimed at the Strategic Air Command bomber bases and at the new long-range missile sites.

Many of these bombers would get through. That is inevitable. Some cities would be destroyed; so would some bomber bases.

But every bomber that could be destroyed before it reached its target would mean a city or a bomber base saved.

The purpose of NORAD, aided by the DEW line and the Mid-Canada and Pinetree lines, is therefore to engage the bombers as far forward (i.e. as far North) as possible, and inflict the maximum possible damage on the enemy's bomber force before it reaches the target.

Hence the SAGE sectors and supersonic interceptor squadrons poised along the U.S.-Canadian border. Hence the Bomarc's to be based around North Bay. Hence the CF-100 squadrons (shortly, in all probability, to be re-equipped with F-101 supersonic fighters) based in Canada.

The whole machine is designed to harry the Russian bombers before they reach their target, and to destroy a good

number of them. If enough can be destroyed, the Russians cannot be sure of knocking out all the apparatus of retaliation, and must consequently expect a devastating blow to fall on them in return. There is fair evidence — to say nothing of the considered view of Sir Winston Churchill — for the proposition that this knowledge, and this knowledge only, has kept Khrushchev in check.

On this basis, Canada's proper role becomes abundantly clear. We can contribute very little to the weapons of massive retaliation, beyond providing SAC with refuelling bases on Canadian soil. But we can and should contribute substantially to the apparatus of early warning, interception and attrition of the enemy bomber force before it reaches its main targets.

In the light of these facts — and they are inescapable — the current argument about whether we should put nuclear warheads on our Bomarc's becomes silly. We have no choice.

The Bomarc is immensely less effective without nuclear warheads; without them, it is certainly not worth its cost. So whatever the anti-nuclear hand-wringers may say, the Bomarc must be so equipped and soon.

If we are to make our just contribution to the attrition capabilities of NORAD, our fighter squadrons in Canada, which operate under NORAD command, must be given new aeroplanes; and this, too, cannot wait.

Many weapons are today beyond our grasp. But we can manage within existing levels of defence expenditure to make a real contribution to the deterrent in the form of fighters, ground-to-air missiles and tactical radar. We can, at little cost, provide facilities for mobile ICBM bases in Canada if these seem to be required.

We are all in this together. If the deterrent fails and Russia attacks, Canada will be destroyed along with the rest of the free world. We have the strongest possible selfish reasons for making the deterrent as strong as it can be made.

God helping us, we can do no other.

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